

3. dialkyl amino,

4. arylamino, or

5. diarylamino;

(d) $-\text{C}(=\text{O})-\text{NH}-\text{R}_2$, where R_2 is as previously defined;

5 (e) $-\text{C}(=\text{S})-\text{NH}-\text{R}_2$, where R_2 is as previously defined;

(f) $-\text{S}(\text{O})_2-\text{R}_2$, where R_2 is as previously defined;

B is hydrogen or C_1-C_6 alkyl;

G is

(a) $-\text{OH}$;

10 (b) $-\text{O}-(\text{C}_1-\text{C}_{12} \text{ alkyl})$;

(c) $-\text{NH}-\text{R}_2$, where R_2 is as previously defined;

(d) $-\text{NHS}(\text{O})_2-\text{R}_1$, where R_1 as previously defined;

(e) $-(\text{C}=\text{O})-\text{R}_2$, where R_2 as previously defined;

(f) $-(\text{C}=\text{O})-\text{O}-\text{R}_1$, where R_1 as previously defined; or

15 (g) $-(\text{C}=\text{O})-\text{NH}-\text{R}_2$, where R_2 as previously defined;

M is absent or selected from:

(a) $-\text{O}-$;

(b) $-\text{S}-$;

(c) $-\text{NH}-$; or

20 (d) $-\text{NR}_1-$, wherein R_1 is previously defined;

Q is selected from:

(a) aryl;

(b) substituted aryl;

(c) heteroaryl;

25 (d) substituted heteroaryl;

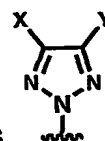
(e) heterocycloalkyl; or

(f) substituted heterocycloalkyl;

$j = 0, 1, 2, 3, \text{ or } 4$;

$n = 0, 1, \text{ or } 2$; and

30 $s = 0, 1, \text{ or } 2$.

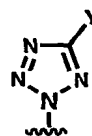


2. A compound of formula I, wherein M is absent and Q is

wherein X and Y are each independently selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, X and Y are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

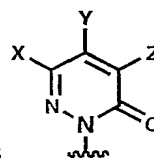


3. A compound of formula I, wherein M is absent and Q is

wherein Y is selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

- b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- 5 c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- 10 e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;
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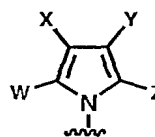
4. A compound of formula I, wherein M is absent and Q is

wherein X, Y, and Z are each independently selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- 20 b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- 25 c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- 30 d) aryl;
- e) substituted aryl;

- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

5 or in the alternative, X and Y or Y and Z are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;



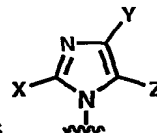
10 5. A compound of formula I, wherein M is absent and Q is

wherein W, X, Y, and Z are each independently selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

30 or in the alternative, W and X, X and Y, or Y and Z are taken together with the carbons to which they are attached to for a cyclic moiety selected from:

aryl, substituted aaryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;



6. A compound of formula I, wherein M is absent and Q is

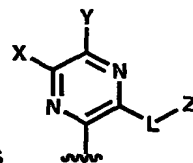
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wherein X, Y, and Z are each independently selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aaryl, substituted aaryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- 10 b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aaryl, substituted aaryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aaryl, substituted aaryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- 15 d) aaryl;
- e) substituted aaryl;
- 20 f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, Y and Z are taken together with the carbons to which

- 25 they are attached to for a cyclic moiety selected from: aaryl, substituted aaryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;



7. A compound of formula I, wherein M is $-O-$ and Q is

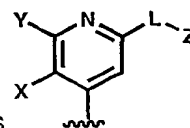
wherein

L is M, where M is as previously defined;

X, Y, and Z are each independently selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, X and Y are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;



8. A compound of formula I, wherein M is $-O-$ and Q is

wherein

L is M, where M is as previously defined;

X, Y, and Z are each independently selected from:

a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

d) aryl;

e) substituted aryl;

f) heteroaryl;

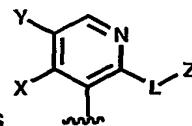
g) substituted heteroaryl;

h) heterocycloalkyl; or

i) substituted heterocycloalkyl;

or in the alternative, X and Y are taken together with the carbons to which

they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl; or



9. A compound of formula I, wherein M is $-O-$ and Q is

wherein

L is M, where M is as previously defined;

X, Y, and Z are each independently selected from:

a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

5 c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

d) aryl;

10 e) substituted aryl;

f) heteroaryl;

g) substituted heteroaryl;

h) heterocycloalkyl; or

i) substituted heterocycloalkyl;

15 or in the alternative, X and Y are taken together with the carbons to which they are attached to form a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl.

20 10. A compound according to claim 1 represented by formula I selected from:

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M = $-O-$, Q = hydrogen, and $j = n = s = 1$;

25 Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M = $-O-$, Q = $-S(O)_2CH_3$, and $j = n = s = 1$;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M = $-O-$, Q = 2-thiophenyl-quinolin-4-yl, and $j = n = s = 1$;

30 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = $-O-$, Q = 2-thiophenyl-quinolin-4-yl, and $j = n = s = 1$;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M is absent, Q = 4,5-diphenyltriazol-2-yl, and j = n = s = 1;

5 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4,5-di-thiophenyltriazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4-(thiophen-3-yl)-5-(p-methoxyphenyl)triazol-2-yl, and j = n = s = 1;

10 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4-(n-butyl)-5-phenyltriazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(3-methoxyphenyl)tetrazol-2-yl, and j = n = s = 1;

15 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(4-pyridyl)tetrazol-2-yl, and j = n = s = 1;

20 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(3,4-dichlorophenyl)tetrazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(3-bromo-4-methoxy-phenyl)tetrazol-2-yl, and j = n = s = 1;

25 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4-(4-fluoro-phenyl)-6-phenyl-1H-pyridazin-3-on-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 6-phenyl-5-piperidin-1-yl-1H-pyridazin-3-on-2-yl, and j = n = s = 1;

30 Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-2-phenyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-2-thiazolyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-2-thiophenyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-3-(thiophen-2-yl)-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 6-Methoxy-3-(thiophen-2-yl)-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-3-[2-(thiophen-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 6-Methoxy-3-[2-(thiophen-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-3-[2-(pyridin-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1; or

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-methoxy-3-[2-(pyridin -2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1.

11. A pharmaceutical composition comprising an anti-hepatitis C virally effective amount of a compound according to claim 1, or a pharmaceutically acceptable salt, ester, or prodrug thereof, in combination with a pharmaceutically acceptable carrier or excipient.

12. A method of treating a hepatitis C viral infection in a mammal, comprising administering to the mammal an anti-hepatitis C virally effective amount of a pharmaceutical composition according to claim 11.

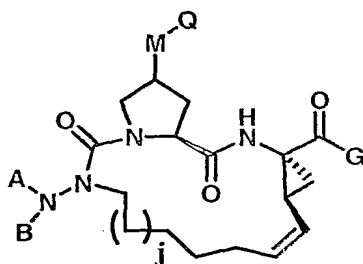
13. A method of inhibiting the replication of hepatitis C virus, the method comprising supplying a hepatitis C viral NS3 protease inhibitory amount of the pharmaceutical composition of claim 11.

14. The method of claim 13 further comprising administering concurrently an additional anti-hepatitis C virus agent.

15. The method of claim 14, wherein said additional anti-hepatitis C virus agent is selected from the group consisting of: α -interferon, β -interferon, ribavarin, and adamantine.

16. The method of claim 14, wherein said additional anti-hepatitis C virus agent is an inhibitor of another target in the hepatitis C virus life cycle, which is selected from the group consisting of: helicase, polymerase, metalloprotease, and IRES.

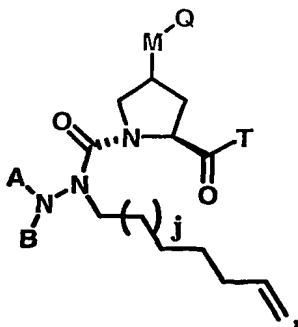
17. A process of making compounds of formula I:



wherein A, B, G, M, Q, j, n, and s are as defined in claim 1, comprising the steps of:

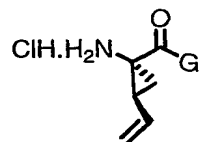
(a) reacting a compound of formula (A):

, wherein A, B, and j is as defined in claim 1 with a hydroxyproline ethyl ester derivative of formula (B): in the presence of a base to form a compound of formula (C):

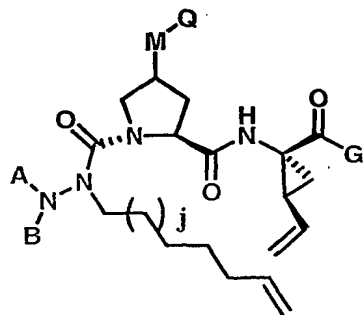


wherein A, B, and j are as defined in claim 1 and T is selected from OH, OMe, or OEt;

(b) reacting a compound of formula B with a compound of formula (D):



, wherein G is as defined in claim 1, under standard amide formation conditions to form a compound of formula (E):



, wherein A, B, G, M, Q, and j are as defined in claim 1; and

(c) reacting compound of formula E with a Ruthenium-based catalyst.